Space Weather Forecast

Issued on Wednesday, 26 June 2024 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Further Moderate class flares likely.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Has been at Moderate levels, with an isolated low level Moderate class flare from the largest and most complex region on the visible disc, in the southeast quadrant. This region is comprised of string of small spots, including one with mixed polarity regions. The remaining regions are smaller, geomagnetic simpler and also generally stable.
A large filament, or line of plasma material, was observed lifting off the west disc around 25/0200 UTC, and a CME (coronal mass ejection) has now been observed on some imagery. Analysis indicates a potential Earth directed component, arriving late day 3 (28th). At present no other Earth directed CME's have been observed in available imagery. However, a long duration common class flare peaking at 25/2204UTC from a small region almost centre disc may have produced a CME. If a CME is observed this would likely have an Earth directed component.

Solar Wind / Geomagnetic Activity: Background slow wind conditions were mainly observed with speeds mostly below 350 km/s. Interplanetary Magnetic Field, was weak, but saw an increase to average around 5-6nT. North-south component was mainly weak, initially negative (southward) but then becoming predominantly positive (northwards) from mid-afternoon onwards. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) has remained at background levels with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a chance of further Moderate flares, with a slight chance of isolated Strong class flares. These most likely from the most significant region on the visible disc, in the southeast.

Solar Wind / Geomagnetic Activity: There are two CMEs of note. A weak enhancement is possible late day 2 or early day 3 (27-28 Jun) from a very glancing interaction with a filament eruption CME from 23 Jun. Then a slight enhancement is possible on late day 3 (28 Jun) from the arrival of the CME from the filament disruption on 25 Jun. This is low confidence however. Otherwise solar winds are expected to remain near background with no notable enhancements forecast. Geomagnetic activity is forecast to be mainly Quiet with only isolated Unsettled intervals. However, there is a chance of Active to Minor Storm intervals late day 3 (28 Jun).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background levels, but with an initial slight chance of exceeding the Minor Storm threshold should any notable flares occur from any of the three large sunspots now around the western limb.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	40	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	55	55	55	55
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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